

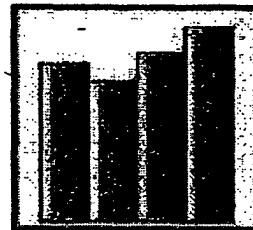
APPENDIX

Excerpts from Corda Technologies' Web Site concerning
PopChart5™ application printed July 17, 2003

Pages A-1 to A-17

PopChart 5™

PopChart is a server-based suite of tools that allows you to produce dynamic graph images in up to eight different formats, including Macromedia® FLASH, SVG, PNG, JPEG, PDF, EPS, TIFF, WBMP. For visually impaired users, it also automatically generates a 508-compliant, d link text description of your graph or map. PopChart integrates easily with most web application servers and data sources.

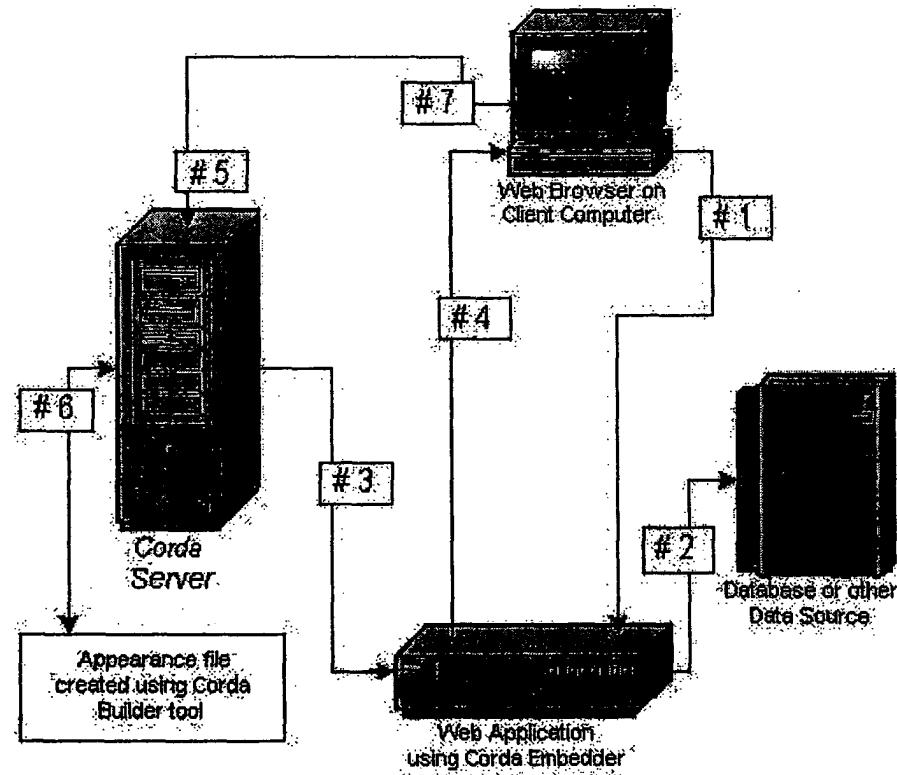


A PopChart image can contain a variety of graphs, fed with on-demand dynamic data. It can include explanatory text boxes, callout notes, or PopUp text that appears as a viewer rolls over certain parts of the graph. It can even include interactive drill-down effects, such as linking to another graph when a user clicks on a certain data item, or executing a custom JavaScript function.

PopChart is the fastest, most robust, and most versatile data visualization and charting tool on the market today. Best of all, because PopChart tools are written in 100% Java, they can run on any platform. No matter what environment you operate in, you can take advantage of PopChart's patented DataFunnel technology to deploy the latest in state-of-the-art interactive data-driven graphics.

PopChart 5™ - Architecture

The image below illustrates how PopChart typically works with your web application server and database to produce a graph and return it to a web client.



This process can be broken down into the following steps:

1. A client (web browser) requests a web page containing graphs from a web application.

The web application could run on the same machine as PopChart server, or on a different machine.

2. The web application fetches data for your graph from a data source.

Alternatively, the PopChart server could request the data after step 3.

3. Using the Corda Embedder, the web application sends instructions (e.g. the location of the appearance file) and data to the PopChart server. The PopChart server stores the data and instructions. It returns to the web application any HTML necessary to embed the requested graph within a web page.

This HTML consists of an <object>, <embed>, or tag whose URL source will instruct the browser to get an image from the PopChart server. This URL contains a "key" in its query string that references the information that the PopChart server has cached.

4. The Web Application Server builds an HTML page that, integrating the HTML that the PopChart server returned, embeds the graph. It then serves this page to the client.
5. Seeing the appropriate tag in the HTML page, the browser requests a graph image from the PopChart server.
6. The PopChart server uses the reference (key) from the browser's request to look up the stored data and instructions. It then fetches the appropriate appearance file and merges the data into this appearance file to create a PopChart image.

Appearance files can be created by designers using PopChart Builder. They can then be uploaded to the PopChart server, or stored on another machine from which the PopChart server can read. Or, the appearance file could be generated dynamically by another web application.

7. This image is returned to the browser, which then displays the graph in the web page it originally requested.

PopChart 5™ - Components

The PopChart data visualization suite consists of a number of tools and components. The principal tools and components are as follows:

Note: There are three versions of PopChart: PopChart Standard, PopChart Pro, and PopChart Enterprise. This page refers to these products collectively as PopChart. When necessary, it will point out differences between PopChart versions.

PopChart Server

The PopChart server does exactly what its name implies—that is, it serves graphs to clients (i.e. web browsers). But these aren't just run-of-the-mill static graphs. These are dynamic and interactive images generated by the PopChart server on the fly. You send the server data and an appearance file (graph template), and it generates an image of your graph, which can then be delivered to browsers in web pages.

The PopChart server communicates using HTTP protocols, so it will easily integrate into your web server environment. It is a Java application, meaning it will run on just about any operating system, including Windows, Mac OS X, Linux, and Solaris. There is also a Java servlet version of the PopChart server, which can be used with Java-compliant application servers.

PopChart Builder

PopChart Builder is a graphical design tool that can run on most desktop computers. With an intuitive interface, PopChart Builder helps designers create graph appearance files (templates) for your PopChart images. These appearance files can be saved or uploaded to the PopChart server and used to generate

PopChart Images.

PopChart Builder also contains many features for PopChart developers, including PCXML and PCScript editors to help you dynamically control the content of your graphs, as well as sample code generation to help you create web pages to contain your PopChart images.

Note: Although PopChart Builder is installed with PopChart, it must be purchased separately from PopChart. Since most PopChart environments require many copies of PopChart Builder, but only one PopChart server. To enforce this restriction, PopChart Builder uses a different license key than PopChart.

Corda Embedder

The Corda Embedder is a server-side utility that integrates natively with many web application servers, including Windows Internet Information Services (IIS), ColdFusion, and J2EE compliant application servers. It simplifies the process of embedding your graphs within web pages. Its simple, attribute-based API gives you complete control over your graph's data and formatting.

The Corda Embedder also offers you complete control over the presentation of your graph within a web page, with settings for image type, size, and alternate text-description. Its unique best-image fallback system employs browser-compatibility detection to automatically deliver your graphs to a browser using the best image format that the browser will support. This means that you can deliver graphs using high-quality formats like SVG or FLASH, yet be sure that non-supporting browsers can still see the graph in a universal format like JPEG or PNG.

The Corda Embedder supports ASP, ASP.NET, ColdFusion Pages, Java Servlets, JSP, and PHP, as well as PERL scripts. There is even a client-side JavaScript version of the Corda Embedder that supports most Corda Embedder functionality.

PopChart 5™ - Features

Click on any topic below to learn more about PopChart features:

- » [**Graphing**](#)
- » [**Annotations & Interactivity**](#)
- » [**Drilldown**](#)
- » [**Output Features**](#)
- » [**Data Connectivity**](#)
- » [**Web Server Integration**](#)
- » [**Enhanced Reporting Components**](#)
- » [**Dynamic Presentation Control**](#)
- » [**Administrative Tools**](#)
- » [**Scalability and Redundancy**](#)
- » [**Security**](#)
- » [**Accessibility - Section 508 Compliant**](#)

Graphing

25+ Graph Types

Visualize data in more than 25 chart and graph types, including bar, line, pie, radar, XY, time, bubble, and stock graphs. PopChart gives you complete control over the formatting and colors of these graphs. To see examples of graph types PopChart supports, [click here](#).

Custom Fills and Line Styles

Display bars, lines, and plot points using a variety of special features. Fill your bars with unique

patterns, stacked images, or transparent colors. Use dotted or dashed styles for your lines. Plot XY or time data with symbols and imported graphics. This is an absolutely essential feature for anyone viewing charts in environments with limited color display options (such as black-and-white printing).

Gauges

Use gauges to monitor real-time management data. Gauges visually indicate the status of a single data parameter. For example, a gauge could change colors to indicate whether inventory levels are high, average, or low. Gauge styles include bulb, bar, and dial (speedometer). PopChart provides numerous options for changing the look and feel of gauges. [Click for example.](#)

Flow Charts

Build flow charts and process diagrams using PopChart shapes and images. Available shapes include rectangles, ellipses, dotted lines, arrows, and complex polygons. Or you can import JPEG and GIF images. You can even take advantage of PopUp shapes to create interactive flow charts in Flash or SVG.

Create Your Own Graphs

Layer multiple graphs on top of each other to create your own unique graph types. The possibilities are endless. Our customers have used this strategy to create everything from confidence intervals to Gantt charts or heat maps.

Annotations & Interactivity

Legends

Automatically generated, color-coded legends explain the meaning of your data. Legends adjust automatically to the scale and range of your data, so that you don't have to worry about using different templates with different data sets.

Text boxes

Place text boxes anywhere you want. Text boxes can be used to title your graph, or to provide additional information about your data (such as the data source).

Images

Annotate your graph visually using imported graphics. Import any GIF, JPEG, or PNG image. Use your graphic for logos and background images, or add transparent effects to turn your graphic

into a watermark.

Shapes

Enhance your graph with simple and complex shapes. Add lines, arrows, boxes, ovals, and stars anywhere you want. Or, define your own unique shape. To each shape, you can add PopUp text, a label, a custom fill or pattern, and a background image.

For a really unique graph, use PopUp shapes--shapes that appear only after a user has moved his or her mouse over a certain part of the image. For example, you could create a shape that contains a photo and a caption, but only appears when a user mouses over a relevant area of the graph.

Data Labels

Automated data labels show the raw data behind any data item. Use macros to define what data should appear in your labels, and how they should be formatted. Rollover labels allow you to keep your graph uncluttered by showing the label only when a viewer moves his or her mouse over the pertinent data item.

PopUp Text

Provide additional information about your data, such as textual annotations, using PopUp text. PopUp text appears when a viewer moves his or her mouse over a relevant data item.

Callout Notes

Attach callout notes to any data item. Callout notes are boxes of text that point to a particular data item using leader lines. They are always visible.

Drilldown

Navigate Your Database With Your Mouse

With drilldown you can turn any data item (as well as legend items, text boxes, images, and shapes) into a "hot spot" for more data--meaning that when a user clicks on that hot spot, they can immediately jump to a new graph that provides further information relative to that data item.

Navigate from high-level to detailed views of your data with simple mouse clicks! Create multi-level drilldown systems to better facilitate data organization and research.

Drilldown to Web Pages

Your drilldown "hot spots" can link viewers to new URLs (i.e. web pages). These web page can contain anything, from textual information related to your data, to data tables, to new charts with more detailed data.

Run Custom JavaScript Functions

You can also "drill-down" to JavaScript functions, meaning that when a user clicks on a hot spot, the browser will execute a function defined in your web page. You can use this functionality to dynamically swap in a new image, change the layout of your page, authenticate user input, or do anything else you'd want to do with JavaScript.

Output Features

Output features will depend on which version of PopChart you buy (Standard, Pro, or Enterprise). [See here for a complete feature comparison.](#)

Web Image Formats

Show your graphs in web pages using one of the following formats:

- FLASH
- SVG
- PNG
- JPEG
- PDF

With the exception of PDF, all of these formats support PopChart's interactive capabilities, including drilldown, rollover, and PopUp text. These formats are supported in most web browsers, and have small download sizes. For more information about these formats, [click here](#).

Publishable Formats

Incorporate high-quality graphs in published reports using the following output formats:

- PDF
- EPS
- TIFF

Although these formats do not support PopChart's interactive capabilities such as drilldown, rollover, and PopUp text, they are popular in numerous image-processing and publishing

applications.

Best Image Fallback

Worried that viewers of your graph may not have the necessary software to view high-resolution FLASH or SVG graphs? Don't be. PopChart employs *Best Image Fallback* to deliver to viewers the highest quality image format that their browser supports. PopChart does this by detecting whether the FLASH or SVG plug-in is present. If so, it will output the graph in FLASH or SVG. Otherwise, it will deliver a PNG or JPEG image.

PopChart can also be configured to deliver just one image type, no matter what, such as JPEG.

HTML Tables

Automatically add an HTML table below your graph for easy access to the raw data behind it.

Graphs in PDAs and Cell Phones

Easily embed graphs in web pages or applications meant for PDAs and cell phones. Most PDAs and many cell phones can view PopChart graphs outputted in the JPEG format. For those that don't support JPEG, you can take advantage of WBMP. WBMP is a monochrome bitmap format with a very small footprint. And finally, many newer PDAs (such as iPAQs) can view fully-featured FLASH graphs. [Click for Example](#).

International Fonts and Languages

PopChart supports international fonts and double-type characters, such as those necessary to display data and information in Chinese or Japanese. PopChart's font converter converts most Windows True Type fonts to a format the PopChart can use in its graphs, including pop-up text and labels. There is full double byte support for all but bi-directional languages.

Data Connectivity

Graph Real-Time Data

Tired of trying to make decisions from graphs with data that is days, months, or even years old? With PopChart your graphs can be as fresh as your database. Thanks to its template-based approach, PopChart doesn't have to create your graphs until the moment they matter most--when you request them. By dynamically merging fresh data with graph templates, PopChart's server will make sure your graphs are always up to date.

Access any Database

PopChart can connect directly to any database that supports ODBC or JDBC drivers. ODBC is supported on Windows computers, and PopChart can connect using both DSN connections (set up as a Windows Data Source) and DSNless connections. JDBC is supported on Java Application servers. Most databases have both ODBC and JDBC drivers.

Among the many databases that support these technologies include:

- Oracle
- DB2
- MySQL
- Access
- PostgreSQL
- MS-SQL
- Informix

PopChart can also interface with databases via your web application server. In other words, if your web server can access data from your database, PopChart can graph it.

XML Data Sources

Graph data directly from XML data files and sources. PopChart can import data outputted from databases in several common XML formats.

CSV Files

Graph data directly from CSV (Comma-Separated Values) files and sources. Many database and spreadsheet applications export CSV files.

Tab Delimited Files

Graph data directly from tab-delimited data files and sources. Many database and spreadsheet applications export tab-delimited data files.

HTML Tables (Screen-scraping)

Mine data directly from your web site. PopChart's screen-scraping capabilities allow you pull data right off your own web pages. Just specify the address of any web page that contains HTML table-based data, and PopChart can import that data into a graph. With screen-scraping, you can literally make the transition from table-based reports to graph or map-based reports with just a few minutes of coding.

Web Server Integration

Web server integration features will depend on which version of PopChart you buy (Standard, Pro, or Enterprise). [See here for a complete feature comparison.](#)

Windows IIS (ASP)

Interface natively with PopChart in ASP pages on Windows IIS servers. An automatically installed COM object lets you embed graphs directly into web pages using only a few lines of code.

Java Application Servers (JSP, Servlets)

Interface natively with PopChart on J2EE compliant application servers. The Java Corda Embedder library allows you to embed graphs in JSPs and Java Servlets using only a few lines of code. The tag library and JavaBean interfaces to this library simplify the process even more for JSPs.

Among the many supported servers in this category:

- BEA WebLogic
- IBM WebSphere
- SunOne/iPlanet Jakarta Tomcat
- JRun
- WebObjects

ColdFusion

Interface natively with PopChart in ColdFusion pages. On Windows ColdFusion installations, an automatically installed COM object lets you embed graphs directly into web pages using only a few lines of code. On non-Windows installations, you can use the Java Corda Embedder library to achieve the same results.

Apache

Interface natively with PopChart on Apache web servers. PHP and PERL versions of the Corda Embedder library allow you to embed graphs directly into web pages using only a few lines of code.

.NET

Interface natively with PopChart in ASP.NET applications. Referencing the .NET Corda Embedder library, you can embed graphs directly into web pages with only a few lines of Visual Basic or C# code. A limited-functionality, but open-source PopChart .NET web component simplifies the process even more by allowing you to drag and drop graphs into web pages without writing any code.

Other Servers

Don't see your server mentioned above? Don't worry. As long as your server supports PHP, PERL, or Java, you will be able to interface natively with PopChart on the server-side. PopChart also supplies a C++ Corda Embedder library for server-side CGIs.

If this still doesn't meet your needs, you can always communicate with PopChart using HTTP requests and PopChart server commands. Or you can try the client-side JavaScript embedder. Both of these are less powerful, limited-functionality approaches, but they will work with any server.

Enhanced Reporting Components

Enhanced reporting features are available only in PopChart Enterprise. [See here for a complete feature comparison.](#)

PDF & EPS Image Output

Incorporate high-resolution PopChart graphs in publishable PDF or EPS reports.

HTML Table Output

Automatically add an HTML table below your graph for easy access to the raw data behind it.

Batch Processing

Build graphs in automated processes. Generate new graph and map-based reports on a nightly basis.

Embed PopChart in Non-Web Applications

Build PopChart into standalone Java applications using the fully-extensible PopChart Java Library. Access PopChart in Windows applications through a COM object API.

Dynamic Presentation Control

Modify Templates on the Fly

Will the look and feel of your graph vary slightly depending on your data? With PopChart's dynamic presentation control it's easy for you to make last-second modifications to your templates. Use PCScript to dynamically add annotations or change colors. Or add new objects to

your templates using PCXML.

All of your templates (appearance files) are based on an XML format called PCXML. This means that with PCXML, you can control every aspect of your graph. In fact, if you wanted to spend time doing so, you could build entirely new appearance files on-the-fly using PCXML.

Change Image Formatting on the Fly

PopChart's Corda Embedder--the tool which allows you to place a graph in a web page with just a few lines of code--offers you many ways to customize how your graph is presented within your web page. Naturally, you can dynamically choose which template (appearance file) to use. But beyond that, you can control such features as the image size and format(s) directly in your web page code, giving web developers enormous flexibility in presenting graph images.

Modify Data Source on the Fly

The Corda Embedder also lets you specify your data source right in your web page's code, which is great for building web applications where the data might change based on user input from a form or drill-down. You can specify a data source for PopChart to connect to directly (e.g. an SQL query, a CSV file, an XML-stream, and so on), or you can pass the results of an SQL query to PopChart as PCScript or PCXML.

Administrative Tools

Web-based Administrative Console

Maintain and modify server settings from a secure, web-based interface. Set default display options and clustering configurations. Upload appearance files and new fonts. View statistics, logs and outputs.

Graphical Reporting

Keep track of hits per hour and hits per day using PopChart's graphical reporting system. This will allow you to closely monitor your traffic levels.

File Upload Support

Easily retrieve and place appearance files on the server from within the administrative console.

Scalability and Redundancy

Scalability and Redundancy features are available only in PopChart Enterprise.
[See here for a complete feature comparison.](#)

Caching

Take advantage of PopChart's image cache to speed performance when multiple users view the same graph. This greatly increases efficiency and reduces the load on the CPU, which can be invaluable in high traffic environments. In many cases you will see a performance increase of 10 to 30 times.

Clustering

Fully utilize the power of your multiple server system with PopChart clustering. PopChart provides clustering for high throughput and redundancy. PopChart supports multiple clustering architectures.

Server Failover

Prevent service failure in high-availability graphing and mapping environments by taking advantage of PopChart's backup feature for clustered servers. With server failover, when one server in a cluster goes down, another server in the cluster seamlessly picks up the load from the failed server.

Load Balancing

PopChart is compatible with external hardware or software load-balancing systems.

Security

Security features will depend on which version of PopChart you buy (Standard, Pro, or Enterprise). [See here for a complete feature comparison.](#)

Separate Communication Port

All communication between the PopChart server, your web server, and your database takes place over a secure port that is different from the one used to serve graphs to clients. This ensures that data and other information passed to PopChart will remain inside of your firewall, while PopChart can still deliver graphs to the outside world.

HTTP Redirection

Serve graph images from your web server instead of the PopChart server using HTTP Redirection. HTTP Redirection allows web servers to handle requests to the PopChart server for graphs. The web server forwards the request to the PopChart server (which rests completely behind your firewall) which returns a graph back to the web server. The graph is then forwarded back to the client who requested it.

This has two benefits: 1) you do not have to expose an additional port through your firewall to get PopChart to work; 2) by using the web server as a middle-man, PopChart adopts the same level of security provided by the web server. For example, if your web server provides SSL, and you use PopChart HTTP Redirection, your graphs will also benefit from SSL.

HTTP Redirection modules are available in the following forms: ISAPI (for Windows IIS), Servlet (for J2EE application servers), and Apache Module.

File and Domain Restriction

For added security, administrators can control from which paths and domains PopChart can retrieve templates and data.

Accessibility - Section 508 Compliant

D-Link Descriptive Text

PopChart's devotion to accessibility for the visually impaired makes it easy for you to create 508 compliant graphs. No longer is it necessary for you to spend time manually creating and modifying alternative text for your graphs to maintain 508 compliance.

PopChart automatically provides D-Link text for every graph it creates. D-Link is a textual description to assist visually impaired who browse the web with screen readers. This textual description describes each data item in the graph, and is fully customizable using templates and macros.

Not only does PopChart D-Link describe your data, it also provides the same interactive features and annotations that sighted users would see viewing the graph. For example, visually impaired users can navigate from one text-description to another using drill-down links. Navigation through large amounts of data is simple, fast and convenient.

PopChart 5™ - Requirements

Hardware

Operating System

- Windows 98/NT4.0 or higher (2000 recommended)
- Mac® OS X 10.1 or higher,
- Solaris 2.6 or higher
- UNIX or Linux® compatible systems

Processor

Equivalent of a Pentium II 233 or higher

Memory

64MB dedicated to your Java Virtual Machine (128MB recommended, 256MB if you create a lot of JPEG/PNG Images).

Java VM

For PopChart Builder, you need JRE 1.3 or higher. For all other PopChart components, you need JRE 1.2 or higher. A Java VM (version 1.3.1) will be installed automatically if you do not have one.

Hard Drive Space

Up to 60 MB, depending on installation options and platform, plus 15 MB if you need to install a Java Virtual Machine.

Other Requirements

A network connection is required to serve PopChart images with PopChart Server.

To use the Corda Embedder, most users will require a web application server that supports one of the following languages/modules: Java, COM (Windows IIS), .NET, PHP, PERL.

To interface directly with a database, PopChart requires a JDBC or ODBC driver for that database. PopChart can also import tab-delimited, comma separated, and XML data, as well as data converted to the PCXML or PCScript formats.